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REPORT

CD NO.

DATE OF
INFORMATION 1951

STAT

COUNTRY USSR

SUBJECT Economic - Planning

HOW

PUBLISHED Bimonthly periodical

DATE DIST. 14 APR 1952

WHERE

PUBLISHED Moscow

NO. OF PAGES 10

DATE

PUBLISHED Jul - Aug 1951

LANGUAGE Russian

SUPPLEMENT TO
REPORT NO

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SOURCE Planovoye Khozyaystvo, No 4, 1951.PLANNING CAPITAL WORK IN THE USSR

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Increased material resources and technical progress have made possible the initiation of large-scale construction projects in the postwar era which are unprecedented in their scale, technological design, and speediness of completion.

Under the present-day tempo of construction, the problems of decreasing costs and speeding up construction have assumed special significance. Nevertheless, a serious lag exists in the field of capital construction, in economic organization and planning.

Bulganin, in his report on the 33d anniversary of the October Revolution, pointed out that in contrast to industrial production, where the net cost of production has decreased with its development, the operating costs of construction, despite the increased volume of capital construction, continue to remain excessively high. Serious deficiencies in planning, unnecessary waste, and inefficient practices result in high construction costs. Material and monetary resources are dispersed among many projects, causing delays in construction and in taking into operation of new productive forces, thereby increasing the volume of unfinished construction.

To correct this condition, the Council of Ministers USSR decided to reduce estimated construction costs by an average of 25 percent, as of 1 July 1950, by eliminating all excessive expenditures in planning and estimates, decreasing the cost of construction and installation work, and reducing wholesale prices of materials, equipment, and transportation charges. The State Committee for Construction Affairs under the Council of Ministers USSR was created to enforce these regulations.

It must be emphasized that the plan for capital construction exerts a strong influence on the long-term development of the rest of the economy. If current needs of the economy basically can be met by the existing fund of fixed capital, an future extension of the scale of production, any changes

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in the allocation of products between different branches, or any significant shift in the distribution of productive forces throughout the country will depend primarily on the construction program.

All the components of the national economic plan are closely inter-related. The coordination of the capital work plan with other components of the national economic plan is accomplished along the following basic lines:

1. The capital work plan serves as a basis for any long-range plan which provides for an increase in production by increasing the productive capacity, and it is linked to the annual production program to the extent to which the program depends on new productive forces to be taken into operation within the current year.
2. The capital work plan also serves as a basis for augmenting the fixed assets allotted for education, public health, and the arts, as well as for government and defense.
3. The capital work plan determines the distribution of productive forces in economic regions and union republics with the aim of developing the previously lagging regions, curtailing and eliminating inefficient and counter-hauled shipments, and strengthening the defensive potential of the country.
4. The capital work plan itself must be worked out on the basis of available labor, material, and financial resources.
5. The link between the capital work plan and the over-all national economic plan is best expressed in terms of the national income. The national income is divided into consumption, accumulation, and reserve. The basis of accumulation is the growth of fixed assets. Consequently, the determination of the best possible proportionment of national income between consumption, accumulation, and reserve is closely tied in with the determination of the extent of capital work itself. To insure the necessary coordination between the capital work plan and all the other components of the national economic plan, it is expedient to divide the plan of capital work into several parts. A comprehensive system of indices has been established for this purpose.

The total volume of capital investment is divided by separate branches of the socialized economy as well as by investments of cooperative organizations, kolkhozes, and individuals.

The capital work plan is then subdivided further by ministries and administrations. In addition, an individual branch plan must also be drawn up. The structure of capital investments on the branch level differs from that of the administrative level. The total volume of investments is determined for each branch regardless of the administrative jurisdiction. For example, capital investments in such branches as electric power stations will be significantly larger than the capital investments for the Ministry of Electric Power Stations inasmuch as the construction of electric power stations is not carried out solely by this ministry.

The structure of the capital work plan on the branch level proves to be of particular significance in the analysis and coordination of the capital work plan with other basic economic and political tasks.

The fundamental problems of a given period determine the emphasis that is placed on the particular branches of the economy in the over-all national economic plan. Investments in industrial construction constituted 63 percent of the total volume of capital work in 1946 - 1950 as compared with 47-48 percent in the prewar period. Investments in rail transport comprised 16 percent in

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1946 - 1950 as compared with 12 percent before the war. The most important changes in the national economic proportions come about just through such changes in the branch structure of capital work.

Indices of the volume of capital investments are supplemented by additional indices which show the completed capital construction for the given plan year, namely, the taking into operation of new fixed assets and productive forces according to branches and ministries. These indices, being coordinated with the national requirements for further development of the productive capacity, are the determinants for the over-all plan of capital work.

Any changes in the volume of new construction specified in the total investment plan will have a direct bearing on the time of completion and the cost of construction as well as on the coordination of the capital work plan with the over-all technical plan. In some cases, rather than construct new enterprises, it is more advantageous to expand to the maximum the existing enterprises. The plan for allocation of productive forces differs according to the volume of the new construction in the plan of capital work. Consequently, in planning capital work, the division of the total volume of capital work on the national or branch level into new construction, reconstruction, and expansion is of primary importance.

The total volume of capital work, either on a national scale or by individual branches, is further subdivided into capital investments which are completed and those not completed during the current year. This division of investments is of great importance to the development of the current production plan inasmuch as completed capital work opens possibilities of placing additional productive forces into operation within the current year. On the other hand, the volume of unfinished capital work influences future operations, since the volume of initiated work must be correlated to the plan of increasing the productive capacity in the following period.

Planning capital work according to stages of completion is important in overcoming the dispersion of resources, in concentrating on the most urgent projects, and in coordinating the current and long-range plans.

From the standpoint of construction requirements, the plan of capital investments is divided into certain basic lines such as construction and installation work, cost of equipment, and other expenditures.

The single category construction and installation work, in turn is subdivided into two components: construction work and installation work. Construction and installation work comprises approximately 60 percent of all capital investment in the economy. This figure, however, may fluctuate considerably according to individual branches, and may be influenced by changes in the type of construction, price changes, etc.

Investments allocated for equipment are subdivided according to equipment requiring installation and unmounted equipment. Equipment requiring installation is intended for the construction of enterprises, mines, road, etc. Mounted equipment is not related to the construction of specific objectives. Equipment comprises approximately 30-32 percent of the total outlay for capital work, of which approximately two thirds is equipment that does not require installation, such as locomotives, rolling stock, watercraft, automobiles, tractors, and other agricultural machinery.

"Other expenditures" of capital construction cover such activities as drilling and geological prospecting, training and maintenance of personnel for enterprises under construction, and expenditures incurred in drainage of land and transfer of the population from land designated for construction.

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As of 1954, planning and research work, formerly covered by "other expenditures," will be financed from the state budget, apart from the capital work plan. This is expected to promote economy in planning and research and at the same time permit the establishment of a system in which any increase in salary paid to the planners will be proportionate to the degree of economy exercised in planning, rather than be based on increases in the cost estimates as had been the practice previously.

Capital investments are subdivided further into above-limit and below-limit capital investments.

Above-limit capital investments include all construction projects which are individually approved by the government and are listed in the title list. As of 1934, specified limits on the estimated cost of construction differentiated by branches were established by the government for all construction work included in the state plan. If the estimated cost of a construction project of a given ministry is equal to or exceeds the limit, then the construction project is subject to government approval in a list of titles which is presented together with all other projects of the national economic plan. Other construction projects are approved by the ministry, provided their estimated cost is below the limit.

"Above-limit" investments then are listed separately by titles in the national plan. The title list specifies the amount and the date of the actual taking into operation of new capacities and fixed assets, the location of new constructions, concentration of resources or projects already under construction, and initiation of capital work by individual projects.

"Below-limit" investments, although not approved by title in the national economic plan, must nevertheless be thoroughly substantiated. The plan for below-limit construction is worked out in conformance with such aims as the existing enterprises and shops, and the creation of new enterprises, electric power stations, residential houses, public health institutions, livestock shelters, etc., as well as for unmounted equipment.

The location of all above-limit construction is listed in the title list. Along with this, the structure of the total volume of capital work (not just above-limit investments) is included in the national economic plan by economic regions and union republics.

The capital work plan is constructed to meet the needs of the national economy. For purposes of coordination, a balance sheet of productive capacity is drawn up showing the availability of productive capacities at the beginning of the plan year, as well as calculations for the optimum utilization of these productive capacities and their expected growth in the ensuing period.

In drawing up the balance sheet of production, notice should be taken of all the available means of increasing production through better utilization of existing resources.

The following is an example of the balance sheet of productive capacity for cement. The initial given data includes:

1. Production in the current year -- 9 million tons; planned production for the following year -- 12 million tons.
2. Productive capacity as of 1 January of the current year equals 11 million tons per year; additional productive capacity to be taken into operation during the current year equals 3 million tons.

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3. No productive capacity will be taken out of operation in the current or plan year.

4. New plants taken into operation in both the current and the plan year will operate only 4 months out of the calendar year.

5. (See appended Table 1 showing a summary of such a balance sheet).

Improvements in the coefficient of utilization of productive capacity are attained on the basis of technical progress, invention, rationalization, and competition. This permits the increased tempo of production with a significantly smaller rate of introduction of new capacities. In the example given above, an increase in the coefficient of utilization of only 5 percent for the plan year as against the current year requires additional new capacity of only 3 million tons to attain an output which otherwise would have required new capacity of 6 million tons.

The balance sheets of productive capacities drawn up according to progressive norms form the basis for the over-all plan of capital work and for coordinating the construction and production plans. Hence, improvements in the methodology of drawing up these balance sheets is contingent upon two factors:

1. Accurate determination of productive capacity.

2. More efficient planning of coefficients for utilization of capacities and establishment of improved progressive norms for utilization of equipment.

The title list represents one of the most important components of the capital work plan. The title lists enumerate all the above-limit constructions together with most important indices established for each individual project. The following information is included in the list (items 5, 6, 7, and 8 are listed under the general heading "Completed up to 1 January of the Plan Year From the Beginning of the Construction." Items 9, 10, 11, and 12 fall under the heading "Plan Year"):

1. Name and location of construction
2. Year of commencement and year of completion of construction
3. Planned capacity of the project
4. Estimated cost of the project under construction
5. Volume of capital work according to estimated cost
6. Volume of capital work in the preceding plan year
7. Putting productive capacities into operation
8. Putting fixed assets into operation
9. Volume of capital work according to estimated cost
10. Putting productive capacities into operation
11. Putting fixed assets into operation
12. Period of taking into operation (in quarters)
13. Technical documents, when and by whom approved
14. Organization conducting the construction

The presentation of planning estimates is mandatory for inclusion of any new construction in the title list. The government prohibits the financing and inclusion in the construction plan of projects lacking such documentation. The planning estimates for construction which is to be included in the title list in the following year should be prepared in the current year. Planning estimates consist of three basic elements corresponding to the particular phase of planning:

1. The project assignment and its financial estimate.

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2. The technical plan and its general estimate.
3. Blueprints which are used directly at the construction site.

The project assignment includes all basic elements which describe the future project: floor plan, type of production of the future enterprise, productive capacity, production relationship of the enterprise under construction with other enterprises and branches of the economy, sources of raw material and fuel, methods and means of water and power supply, basic types of buildings and equipment, construction of residential housing, and the time limit for construction and the order of priority.

Construction projects which lack a project assignment may not be included in the title list. Construction projects having a project assignment but lacking a technical plan may still be listed, but work on such a project during the plan year may consist only of preliminary work, such as the acquisition of land, necessary construction equipment and means of transport, the procurement of construction materials, construction of approaches to the construction site, and quarrying.

At present, project assignments and financial estimates for construction the cost of which exceeds the limits established by the government have to be approved by the Council of Ministers USSR. Project assignments and estimates of other above-limit constructions are approved by ministries and departments. Technical plans and estimates are approved by ministries, with the exception of large-scale projects and new branches of industry which are independent of cost considerations; their technical plans are approved by the Council of Ministers USSR. The State Construction Office (Gosstroy) has an important role in the preparation of accurate plans and estimates.

Determination of cost and the utilization of available reserves so as to decrease cost is of primary importance. The bases for estimating the cost of capital investment for each project in the current year are the approved financial estimates, the estimates of already utilized funds in cases of construction carried over from the preceding year, and the completion date. The volume of above-limit capital investment, totaled by individual ministries and for the national economy as a whole, is determined in this manner. To this must be added the estimates and the basic direction of below-limit construction. The sum total of both the above-limit and the below-limit construction will make up the total volume of national capital investments.

The difference between capital investments and fixed assets taken into operation, minus investment outlays that do not increase fixed assets, such as administrative expenditures and expenditures incurred in the training of personnel etc., comprises the increase in the amount of unfinished capital work.

The estimated cost of the total volume of capital work is composed of the estimated cost of listed above-limit construction, the estimated cost of below-limit construction, and the cost of unmounted equipment.

The technical plan specifies the technical aspects and characteristics of various construction projects on the basis of which the actual construction is determined. The estimate is derived from the technical plan, the "increased norm estimates" (ukrupnyennye smetnye normy), and approved price lists.

The increased norm estimates, which are included in the basic estimates, were approved by the government at the end of 1937 and have not been revised since. Presently, new increased norm estimates are being worked out which take into account all changes in the construction technology that have occurred during this period. The increased norms and unit price calculations

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for a given project are determined on the basis of the technical plan. These unit calculations represent calculations of the estimated cost of each construction operation based on the approved norms and prices.

The extent of the estimated cost is determined primarily by the engineering design of the project in question. The latter also regulates the volume of earthwork, foundation, number and type of scaffolding, etc., that go into the construction of a project. In addition, the cost estimate is also determined by the established increased norm estimates for expenditure of materials, manpower, and construction machinery. Wage norms, cost of materials, and transport also have a bearing on the final cost estimate.

All excesses, such as overextending the plant area and communications, dispersing of shops, and unnecessarily large auxiliary buildings and structures, as well as all other unjustified increases in the quantity and capacity of auxiliary equipment etc., must be eliminated from the plan.

Serious efforts also must be made to use mechanized processes in construction and installation work, to utilize construction machinery, to eliminate idle equipment and wasteful use of materials at construction sites, and to accelerate the turnover of working capital in construction work. The introduction of industrial methods in construction consisting of extensive use of construction parts and large-scale assembly work at the construction site have special significance in cutting construction costs. Elimination of excessively high norms for wages, materials, and transport will also promote economy.

In construction planning, much depends on the correct formulation of the title list which is to be included in the state plan, and on the correct allocation of the total volume of investments among the individual construction projects. Dispersing material and financial means among many different projects delays their completion and placement into operation, thus increasing the amount of unfinished construction which has to be carried over to the next year. Consequently, first priority should be given, both in the overall national plan and in the title lists of various ministries, to the above-limit and to the below-limit projects already under construction.

In addition to the construction cost estimates, the national economic plan contains the actual construction cost for a given plan year together with the requirements for future cost reductions in the construction and installation work as compared with the estimated cost. Thus, the first postwar Five-Year Plan was approved in 1945 estimated costs. However, the law of the postwar Five-Year Plan required the lowering of the construction and installation cost by 12 percent as compared to the estimated 1945 costs. The national economic plan for 1951 specifies lowering the construction and installation cost by an additional 3 percent as against the estimated cost established as of 1 July 1950.

The difference between the estimated and the actual planned cost of construction shows up in the rate of profit of the contracting organization. In constructions conducted directly by an economic organization itself and for its own use, the difference between the estimated cost and the actual planned cost shows up as decreased expenditures in the balance sheet of income and expenditures of that particular economic organization.

The capital investment program makes large requirements on other branches of the economy. Therefore it is necessary that the volume of investments be coordinated through a system of material balances and financial calculations.

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The problem of correctly coordinating the capital work plan with the financial plan is closely linked to the problem of deciding on the optimum correlation between consumption, accumulation, and reserves for the year of the plan.

In the material balances such as those of rolled iron, cement, wood, and other construction materials, the construction requirements are determined by the basic volume of construction and installation work of each ministry and the expenditure norm per one million rubles of construction and installation work. The most important projects already under construction have first priority in obtaining supplies of construction materials and equipment. The delivery of materials and equipment must also be scheduled so as to speed up the completion date of the most important projects.

The norms for material expenditures must be derived from the best indices which have been attained on construction during the accounting year. The study of the foremost construction methods is of primary importance in compiling these indices. The work connected with the establishment of proper progressive norms is conducted on the branch level in the first stages of national planning, inasmuch as shifts in the branch structure of the construction and installation work alter the norms for material expenditure. Fluctuations in these norms are extremely sharp. The norm of expenditure of cement per one million rubles of construction and installation work in the construction of an electric power station is three times greater than the norms in the construction of a lumber or paper mill and a third greater than that for a machine-building enterprise. The lumber expenditure norm in the coal-mining industry is twice as great as that of the machine-building industry. Such fluctuations make it impossible to compute average norms for the economy as a whole, or even for the ministries. In addition, it is necessary to allow for the variations that exist in the type of construction and installation work in various branches of construction.

Finally, it must be kept in mind that average norms per million rubles of construction and installation work have great shortcomings, inasmuch as the volume of construction and installation work expressed in rubles does not express the special features of different projects.

Generally, for purposes of economy, it is necessary to improve the norm-setting of material and labor expenditures, replacing wherever possible cost (ruble) calculations of the work volume by quantitative indices.

The coordination of the capital work plan with the needs of construction requires exacting planning of the construction industry. The national economic plan establishes numerous indices for the development of the construction industry. With the development of the economy, the construction industry has advanced to the status of an independent branch of the economy, with its own specialization, its own capital, and personnel. One of the best indications of the growth of the construction industry is the increase in the relative importance of contracted construction.

The work of this industry is gauged by the volume of the construction and installation work, while its production is expressed in such natural entities as enterprises, railroads, residential houses, schools, etc., that have since been taken into operation.

In the national economic plan, the total volume of construction and installation work for each ministry is allocated according to construction organizations. The plan also makes provisions for equipping the organizations with machinery and operating capital and trained construction personnel. The plans for increasing labor productivity and decreasing construction and installation costs are guided by the achievements of the foremost construction organizations, construction brigades, and individual Stakhanovite workers.

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The development of the construction industry is directed not only by the assignments in the state plan to construction organizations, but also by the plans for the development of other branches of the economy which are auxiliary to the construction industry, such as the development of the construction materials industry, timber industry, rolled iron production, etc.

The control over the execution of capital work plan has several peculiarities which arise from the fact that capital construction takes place in a long, continuous cycle of production. In the majority of industries, it is possible to determine from current production just how plan fulfillment is progressing. In construction work, however, owing to the extremely long production cycle, it is impractical to await the completion of construction in order to determine the work performance of the construction organization. As a result, a systematic check on the progress of the work and a thorough on-the-spot analysis of the stage of construction is required. Average figures of the volume of investments, while important in accounting, are very inadequate in appraisal of construction progress. A detailed account of the situation as it exists at the construction site is necessary in order to eliminate the existing shortcomings in time.

The control over the execution of the capital work plan must be inclusive of all indices, both quantitative and qualitative, such as the volume and organization of work, allocation of investments among projects, completion of projects, fulfillment of plans for lowering material expenditure norms, increasing labor productivity, lowering construction costs, and insuring material and technical supply, especially for projects already under construction.

The following long-term credit banks have been delegated a major role in the control and verification of the execution of the capital work plan: Prombank, Sel'khozbank, Torgbank, and Tsekombank. These banks exercise control over construction expenditures and are afforded the opportunity to effect systematic control directly at the construction site.

Table 1. Summary of Typical Balance Sheet of Productive Capacity of a Branch or Industry

	Existing Produc- tive Ca- pacity as of 1 Jan	Placed Into Opera- tion During Year	Taken Out of Opera- tion	Existing Produc- tive Capacity at End of Year	Reference Data		
					Produc- tion Plan	Average Annual Capacity	Coefficient of Utiliza- tion of Ca- pacity (%)
Current year	11	3	-	14	9	12	75
Year of plan							
Under non- varying coefficient of utiliza- tion of pro- ductive ca- pacity	14	6	-	20	12	16	75

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	<u>Existing</u> <u>Produc-</u> <u>tive Ca-</u> <u>capacity as</u> <u>of 1 Jan</u>	<u>Placed</u> <u>Into</u> <u>Opera-</u> <u>tion</u> <u>During</u> <u>Year</u>	<u>Taken</u> <u>Out of</u> <u>Opera-</u> <u>tion</u>	<u>Existing</u> <u>Produc-</u> <u>tive</u> <u>Capacity</u> <u>at End</u> <u>of Year</u>	<u>Produc-</u> <u>tion</u> <u>Plan</u>	<u>Average</u> <u>Annual</u> <u>Capacity</u>	<u>Coefficient</u> <u>of Utiliza-</u> <u>tion of Ca-</u> <u>capacity (%)</u>
Under in- creased coeffi- cient of utiliza- tion from 75 to 80%	14	3	-	17	12	15	80

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